

Growth of Engineering Consultancy Sector in India & Abroad

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Engineering Consultancy Services is one of the many consultancy domains that has seen its importance growing with the thrust on infrastructure services, especially in developing countries like India. Strong and consistent emphasis on self-reliance in its economic development programmes over the years by the Government of India have enabled India to build up a huge and versatile cadre of professionals with expertise and skills across a vast and wide-ranging spectrum of disciplines. A sizeable part of this workforce of professionals makes up the country's growing consultancy sector which has been offering its accumulated experience and expertise at home and abroad.

Engineering and technical consultancy services include the entire range of services that are popularly classified under pre-project, project execution and post-project, broadly involving activities such as project identification/evaluation; environmental impact assessment, identification and development/sourcing of technologies; preparation of feasibility reports, market studies; designing of projects, equipment procurement and erection; engineering design services, project management services, architectural/construction engineering services; and project commissioning, operations and maintenance. Fuelled by increased demand for



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consultancy services by domestic and foreign firms, the sector in India is projected to grow at an annual rate of 30 per cent to become more than Rs 20,000 crore industry. Rising opportunities due to a booming economy and growing demand for consultancy services would result in a 28-30 per cent growth in the sector that would touch over Rs 25,000 crore by 2013.

As we are aware, Innovation is a key driver for the growth of an economy. It includes "new to the world" knowledge creation and commercialization as well as "new to the market" knowledge diffusion and absorption. Innovation means eschewing standard approaches and conventional tools that may have outlived their utilities. Yet, the same approaches and tools have been ingrained over decades in the minds and hearts of the practicing professionals, consultants included. The construction industry needs to put innovation at the heart of its future development

to address many of the domestic & global challenges. The challenges come under the rubrics of climate change, energy intensity of the economy, effective and efficient infrastructure, particularly to cater for the increased pace of urbanization in the developing countries.

In view of the massive growth in Infrastructure Sector in India, newer technologies in Construction Industry has been developed within the country as well as brought in from overseas. The role of Engineering consultant has increased many fold. The construction industry is growing at an immensely fast pace and soaring new heights all across the globe. With an increase in construction activities, cost related to constructing a building is also increasing swiftly. Progress in the construction industry has led to amalgamation of latest technology and techniques, which ensures construction in shortest possible time. Few of the latest technology and techniques being adopted and becoming popular in India & abroad in Construction Sector are -

Pre engineered buildings

Pre engineered buildings are a cost-effective alternative solution to conventional construction techniques assuring minimal time consumption. Pre engineered steel buildings are the latest advancement in the field of building industry and offer numerous benefits as compared to



traditional construction methods. In the pre-engineered method, the components of the building are constructed at the manufacturer's premises and parts are then assembled at the construction site. With the use of these building structures, huge amount of construction cost is saved. All the construction work of these structures is completed with the use of machines, which not only reduces the human effort but also saves a lot of time.

The Engineering consultants in pre-engineered steel buildings are continuously coming up with fresh ideas to provide clients' needs for these structures, ranging from agricultural facilities to commercial amenities to residential homes. Furthermore, pre-engineered steel buildings are not only limited to one appearance now because there are several architectural designs already to make them more appealing and contemporary-looking.

Low Cost Housing

Adequate housing is a basic human right as shelter is a basic human need. Provision of adequate housing is emerging as a major thrust area for Government of India as well as the State Governments. With the ever increasing cost of land, building materials, labour and infrastructure; affordable housing is virtually turning out to be a distant dream for the economically weaker sections and lower income groups. Hence, the role and intervention of the State Governments along with a sustainable policy of the Government of India becomes imperative to achieve this objective.

Affordable shelter for the masses or creation of productive and responsive housing for all is not a simple technological issue or a

mere problem of finance. It is a complex amalgam of a host of factors which need to be tackled at all levels and in a synchronized manner. Provision of affordable housing to the needy is also a matter of economic and social significance. Majority of the world population now lives in cities. In this period of rapid urbanisation, availability of affordable housing in proximity of mass transit and linked to job distribution, has become severely imbalanced. In the market economy, it is essential to understand trends and disparities in income and wealth. Housing is often the single biggest expenditure of low and middle income families; their house is also the greatest source of wealth. An engineering consultant can come with alternative design for Low Cost Housing.

Modular Construction with Container Technology

The Modular volumetric building system is another technology which is being deployed in the construction of residential, hotel, commercial establishments. The modular system is built based on standard shipping container technology which ensures easy transport, faster construction at site. The modular units are easily stacked, self supporting flexible, accommodating large openings. Supplementary elements are also added to the outside of the units such as windows, door openings and balconies. The robust structure that is highly adaptable can be built upto 16 stories high without secondary support.

MIVAN - A Versatile Formwork

MIVAN is an upcoming technology which has empowered and motivated the mass construction projects throughout the world. A

pragmatic approach of this technology with provisions of speed, quality, financial incentives and construction aspects is required for a successful completion of mass housing project.

Certain patented systems based on imported technologies such as "Mascon System" (Canada), "Mivan System" (Malaysia) have come on the Indian scene in recent years. In these systems traditional column and beam construction is eliminated and instead walls and slabs are cast in one operation at site by use of specially designed, easy to handle (with minimum labour and without use of any equipment) light weight pre-engineered aluminium forms. Rapid construction of multiple units of a repetitive type can be achieved with a sort of assembly line production by deployment of a few semi-skilled labours.

The entire operation essentially comprises fitting and erecting the portion of shuttering as already determined (the optimization in use is determined by appropriate planning) and then carrying out concreting of the walls and slabs. Props are so designed that they stay in position while de-shuttering of slabs and/or takes place. The dimensional accuracy of the formwork is of high order. Therefore any possibility of errors does not rise.

Sustainable and Green Building Concept

The concept of Green Buildings is a new approach to save the natural resources such as water, energy and materials used in construction operation and maintenance of the buildings and other industries thus reducing or eliminate the bad effect of buildings, industries and other infrastructural projects on the environment



and the population. Construction of Green Buildings over a conventional ones aims at earth and its habitats retaining nature to original state.

Green buildings uses the products that are, re-usable, re-newable, and /or re-cyclable to the extent possible. Locally manufactured products are preferred so that the collective material environment of the location remains same and also the heat generated and the carbon content produced by use of the fuel for the transport of materials is reduced to a great extent. The Buildings constructed based on the Green concepts should confirm to the prescribed standards. There has to be continuous assessment and monitoring from the planning/design stage itself and are checked upto the completion of the construction, for declaring a building as a Green Building. Therefore, Green building offers the chance to benefit everyone: residents, owners, neighbours, local governments, regional businesses, and the local and global environment. National & International standards are framed for Green Building viz. LEEDS & GRIHA rating system and consultants are gradually adopting these norms to meet the statutory and mandatory requirements.

Mass Rapid Transportation Systems- Monorail

Abnormal increase in vehicular traffic congestion around the globe had posed severe problem and throws an open challenge to the consultants to deal with it. Multi Model Transport System- Monorail provides the solution to the above to a greater extent. As a matter of fact the Metro Rail system can be the more effective mode if it is integrated with the

Monorail system providing access in the narrow corridors. The monorail systems are specially suitable for Tier-II /Tier-III congested cities in India. The motorized traffic can be minimized if point-to-point transportation facility like Monorail integrated with Metro Rail is made available to the general public. Few of the advantages of Monorail are- they require minimal space, both horizontally and vertically. Monorail vehicles are wider than the beam, and monorail systems are commonly elevated, requiring only a minimal footprint for support pillars, monorail track is usually less expensive to build than a comparable elevated conventional rail line of equal capacity.

Scenario under the 12th five year plan

The Construction sector is going to have an investment of 1 trillion dollar during 2012-17 in India. Hence the engineering consultancy is going to have a boom during the period. As 500 million dollar shall be generated through PPP model, the work load of engineering consultants is going to be enormous in all sectors of construction viz. Power, Infrastructure,

Fuelled by increased demand for consultancy services by domestic and foreign firms, the sector in India is projected to grow at an annual rate of 30 % to become more than Rs 20,000 cr industry. Rising opportunities due to a booming economy & growing demand for consultancy services would result in a 28-30 % growth in the sector that would touch over Rs 25,000 cr by 2013.

Building & IT Parks, Chemical, Industrial, Mining, Mineral and Metallurgical, Nuclear, Safety related services etc. The Hon'ble Prime Minister, Govt. of India has reviewed the infrastructure projects in India recently and has given a Mega Push in Roads, Power, Coal, Civil Aviation and Railways Sectors in a big way by announcing multiple new projects which shall generate challenges and opportunities for Consultants & Engineers to work upon with new innovations and creativity.

Growing need of Consultancy

In India under liberalized economy and globalization scenario, the engineering consultancy with international competitiveness have to grow in Industrial Engineering (cement, automobiles, & auto components, glass, tyres, special projects. Process engineering, benchmarking feasibility studies. Expert witness services, oil gas & petrochemical, good agriculture, paper & textiles, chemicals, fertilizers, pharmaceuticals, bio-engineering, mineral resources, & metallurgical, environmental health & safety areas) where demand is growing extensively for growth of economy. As Indian brain is doing miracle in IT sector abroad, the consultants from India have spread their wings in other countries by Joint Venture and through e-consultancy.

Considering the above aspects and all round infrastructure development globally, the Engineering Consultancy Sector is poised for tremendous growth in next decade & beyond. However, Consulting organisations have to gear up themselves with more innovative & cost effective options in their design proposals to provide better comfort to the Society. ■■■